Received: 4 June 2020 | Revised: 5 July 2020 | Accepted: 7 July 2020

DOI: 10.1111/odi.13555

LETTER TO THE EDITOR

ORAL DISEASES WILEY

Oral manifestations associated with COVID-19

The appearance in December of a new coronavirus has caused an unprecedented pandemic in the modern era. Undoubtedly, the disease produced by the novel coronavirus and its consequences have posed a challenge for health authorities worldwide. The way of contagion through direct contact and through saliva in the form of small drops and the production of aerosols have facilitated the rapid spread worldwide.

In Spain, the authorities declared the confinement for the majority of population in March 14; therefore, most of dental clinics were closed except for emergencies. Dentists were considered at high risk due to two factors: All procedures are obviously performed in the mouth with direct contact with saliva and the exposure to aerosols produced by rotatory instruments. Many articles have been published regarding the spread of the virus and the role that saliva plays in its transmission and diagnosis (Chen et al., 2020; Li et al., 2020; Sabino-Silva, Jardim, & Siqueira, 2020; Xu et al., 2020a,2020b; Zhong et al., 2020).

In relationship to extrapulmonary manifestations, several authors have reported cases with cutaneous manifestations in which maculo-papular, acral, urticariform, vesicular, and vascular obstruction-type manifestations are the most common (Estebanez et al., 2020; Galván Casas et al., 2020; Landa, Mendieta-Eckert, Fonda-Pascual, & Aguirre, 2020; Recalcati, 2020).

During this period, despite the implications of saliva for virus transmission and the possibility of salivary glands as a reservoir, few oral manifestations have been reported. Oral dryness, vesiculobullous lesions, aphthous-like lesions, dysgeusia, and anosmia are the most common oral signs reported (Martín Carreras-Presas, Amaro Sánchez, López-Sánchez, Jané-Salas, & Somacarrera Pérez, 2020; Xu et al., 2020a,2020b).

In this paper, we present 3 cases in which we have a confirmation for SARS-CoV-2 with oral manifestations.

A 43-year-old woman tested positive for SARS-CoV-2 for 56 days, period in which several PCRs were performed. Patient developed fever, malaise, dysgeusia and anosmia, diarrhea, and pneumonia, and blood laboratories suggested risk of thrombosis. She was isolated and remained in quarantine during this period with regular follow-ups by doctors over the phone. In the last 2 weeks, she reported aphthous-like lesions, burning sensation, and tongue depapillation that progressed as observed in Figure 1. Image was sent through SMS with informed consent and data protection for sending

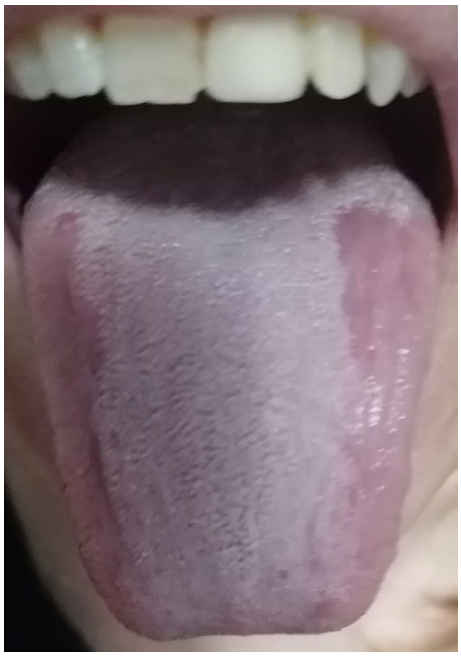

FIGURE 1 Bilateral atrophy of the surface of the tongue located in the lateral sides. Lateral dorsum appears depapillated with a symmetrical distribution

FIGURE 2 Commissural cheilitis. Notice the fissure and bleeding located in the commissure

FIGURE 3 Atrophy of the surface of the tongue including white fungal patches, distributed mainly in the left lateral side, and a red plate located in the hard and soft palate. Notice also the fissures located in the dorsum of the tongue

images. In this case, we prescribed rinses with a solution containing triamcinolone acetonide 0.05%, 3 times a day for a 10-day period. After treatment, lingual depapillation persisted but ulcers and burning sensation disappeared.

A 53-year-old man tested positive for SARS-CoV-2, with hospital admission in the first week of April. A few days after hospital discharged, patient scheduled an appointment at the dental clinic for consultation. He referred burning mouth sensation and also unilateral commissural fissures (Figure 2). Complaining of anosmia and dysgeusia was recorded. Lesions were diagnosed as commissural cheilitis. In this case, we prescribed ointment containing neomycin, nystatin, and triamcinolone acetonide for application 3 times a day. Avoid self-licking the area, as well as shaving, was recommended in order to diminish trauma. Hygiene of the area using a gauze with chlorhexidine between ointment application was also indicated. Commissural lesions disappeared completely after treatment, but anosmia and dysgeusia were still present.

A 78-year-old woman tested positive for SARS-CoV-2, with hospital admission in the first days of April. Since hospitalization, she reported very intense sensation of dry mouth that she did not have previously. During dental consultation, lesions on the tongue, palate, and commissure compatible with pseudomembranous candidiasis and angular cheilitis were observed (Figure 3). In this case, we prescribed solutions and gels to improve salivary dryness. Nystatin solution rinses 4 times a day were prescribed for the intraoral lesions for 15 days. Angular cheilitis was treated using ointment containing neomycin, nystatin, and triamcinolone acetonide. After treatment, pseudomembranous lesions disappeared as well as commissural fissures. Moreover, salivary flow and dry mouth sensation improved.

In relation to the cases reported, it should be noted that all of them are related to a certain state of immunosuppression. Stress might play an important role in the appearance of these oral conditions.

Cause–effect relationship between coronavirus infection and the appearance of oral lesions cannot be established; however, as in HIV infection, COVID-19 patients develop oral lesions related to immunosuppression more frequently.

The reasons for absence of sufficient scientific evidence reporting oral lesions may be due to the confinement situation, lack of access to test therefore diagnosis confirmation, and the fact that most dentists, as a result of the high-risk contagion, have been out of the health system. Nevertheless, telemedicine has been a useful tool to establish triage and primary diagnosis avoiding personal attendance during the peak of infection.

It is important to consider that an exhaustive intraoral examination should be performed in patients that were diagnosed with COVID-19 in order to find any oral manifestation that might be related. For instance, appearance of temporal oral pigmented lesions is expected as chloroquine has been used as part of the treatment in patients with COVID-19. Also, dentist should improve the examination of salivary glands and saliva flow in order to perform early diagnoses related to changes in the glandular parenchyma that might be affected by the virus.

CONFLICT OF INTEREST

None to declare.

AUTHOR CONTRIBUTION

Milagros Diaz: Resources; Writing-original draft; Writing-review & editing. **Amelia Jimenez:** Resources; Supervision. **Mariana Villarroel-Dorrego:** Supervision.

PEER REVIEW

The peer review history for this article is available at https://publons.com/publon/10.1111/odi.13555.

REFERENCES

Chen, L., Zhao, J., Peng, J., Li, X., Deng, X., Geng, Z., … Wang, S. (2020). Detection of 2019-nCoV in saliva and characterization of oral symptoms in COVID-19 patients. *SSRN Electronic Journal*, 1–24. https://doi.org/10.2139/ssrn.3557140

Estébanez, A., Pérez-Santiago, L., Silva, E., Guillen-Climent, S., García-Vázquez, A., & Ramón, M. D. (2020). Cutaneous manifestations in COVID-19: A new contribution. *Journal of the European Academy of Dermatology and Venereology*, *34*(6):e250–e251.https://doi.org/10.1111/jdv.16474

Galván Casas, C., Català, A., Carretero Hernández, G., Rodríguez-Jiménez, P., Fernández Nieto, D., Rodríguez-Villa Lario, A., … García-Doval, I. (2020). Classification of the cutaneous manifestations of

COVID-19: A rapid prospective nationwide consensus study in Spain with 375 cases. *British Journal of Dermatology*, 71–77. https://doi.org/10.1111/bjd.19163

Landa, N., Mendieta-Eckert, M., Fonda-Pascual, P., & Aguirre, T. (2020). Chilblain-like lesions on feet and hands during the COVID-19 Pandemic. *International Journal of Dermatology*, *59*, 739–743. https://doi.org/10.1111/ijd.14937

Li, Y., Ren, B., Peng, X., Hu, T., Li, J., Gong, T., … Zhou, X. (2020). Saliva is a non-negligible factor in the spread of COVID-19. *Molecular Oral Microbiology*, *35*(4), 141–145. https://doi.org/10.1111/omi.12289

Martín Carreras-Presas, C., Amaro Sánchez, J., López-Sánchez, A. F., Jané-Salas, E., & Somacarrera Pérez, M. L. (2020). Oral vesiculobullous lesions associated with SARS-CoV-2 infection. *Oral Diseases*, 1–3. https://doi.org/10.1111/ODI.13382

Recalcati, S. (2020). Cutaneous manifestations in COVID-19: A first perspective. *Journal of the European Academy of Dermatology and Venereology*, *34*(5), e12–e13. https://doi.org/10.1111/jdv.16387

Sabino-Silva, R., Jardim, A. C. G., & Siqueira, W. L. (2020). Coronavirus COVID-19 impacts to dentistry and potential salivary diagnosis. *Clinical Oral Investigations*, *24*, 1619–1621. https://doi.org/10.1007/s00784-020-03248-x

Xu, J., Li, Y., Gan, F., Du, Y., & Yao, Y. (2020a). Salivary glands: Potential reservoirs for COVID-19 asymptomatic infection. *Journal of Dental Research*. https://doi.org/10.1177/0022034520918518. [Epub ahead of print].

Xu, R., Cui, B., Duan, X., Zhang, P., Zhou, X., & Yuan, Q. (2020b). Saliva: Potential diagnostic value and transmission of 2019-nCoV. *International Journal of Oral Science*, *12*, 11. https://doi.org/10.1038/s41368-020-0080-z. [Epub ahead of print].

Zhong, F., Liang, Y.-J., Xu, J.-B., Chu, M., Tang, G.-F., Hu, F.-Y., … Liao, G.-Q. (2020). Continuously high detection sensitivity of saliva, viral shedding in salivary glands and high viral load in patients with COVID-19. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3576869. [Epub ahead of print].

KEYWORDS

COVID-19, fungal infections, immunosuppression, oral lesions, SARS-CoV-2, stress

Milagros Díaz Rodríguez[1]
Amelia Jimenez Romera[2]
Mariana Villarroel[3]

[1]*Dentistry Department, Oral Pathology and Special Patients, Universidad Europea de Madrid, Madrid, Spain*
[2]*Los Carmenes Primary Care In Dentistry, Madrid, Spain*
[3]*Universidad Central de Venezuela, Caracas, Venezuela*

Correspondence
Milagros Díaz Rodríguez, Dentistry Department, Oral Pathology and Special Patients, Universidad Europea de Madrid, Madrid, Spain.
Email: mdiaz@momdental.com

ORCID

Milagros Díaz Rodríguez https://orcid.org/0000-0002-6061-6291
Mariana Villarroel https://orcid.org/0000-0002-0596-1527